

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
18 August 2005 (18.08.2005)

PCT

(10) International Publication Number
WO 2005/076050 A1

(51) International Patent Classification⁷: **G02B 21/00**,
G01N 21/64

[NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven
(NL).

(21) International Application Number:
PCT/IB2005/050354

(72) Inventor; and
(75) Inventor/Applicant (for US only): **GLEICH, Bernhard**
[DE/DE]; c/o Philips Intellectual Property & Standards
GmbH, Weisshausstr. 2, 52066 Aachen (DE).

(22) International Filing Date: 27 January 2005 (27.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
04100462.3 9 February 2004 (09.02.2004) EP

(71) Applicant (for DE only): **PHILIPS INTELLECTUAL
PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-
damm 94, 20099 Hamburg (DE).

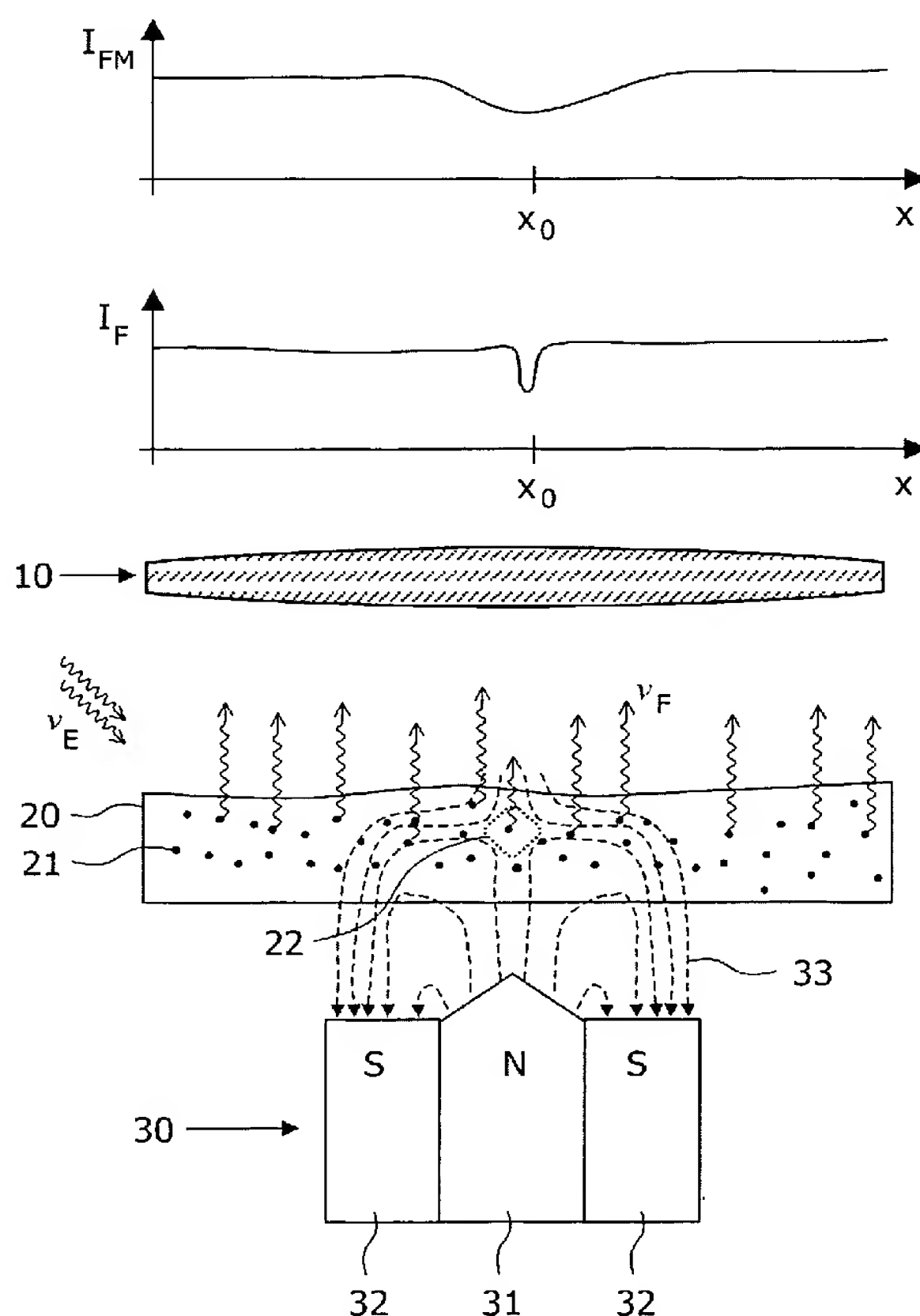
(71) Applicant (for all designated States except DE, US):
KONINKLIJKE PHILIPS ELECTRONICS N. V.

(74) Agents: **VOLMER, Georg** et al.; Philips Intellectual
Property & Standards GmbH, Weisshausstr. 2, 52066
Aachen (DE).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,

[Continued on next page]

(54) Title: FLUORESCENCE MICROSCOPE ARRANGEMENT



(57) Abstract: The invention relates to a microscope arrangement and to a method with which the spatial distribution of a magnetically and/or electrically sensitive fluorescent marker (21) in a sample (20) can be determined. Fluorescence radiation (VF) is excited by primary radiation (VE) in the sample (20) and imaged by a microscope. At the same time, within the sample (20) a spatially inhomogeneous magnetic and/or electric field (33) is generated, which has, for example, a small focal region (22) of minimum field strength. The emission of fluorescence radiation is locally modified in the focal region (22), which can be observed in the measured intensity distribution (IFM). In this way, the distribution of the fluorescence marker (21) even in regions (22) having a size below the optical resolution of the microscope (10) can be reconstructed.



TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.